

**ABSTRACT**

Method and apparatus for precision alignment of a moving tire building drum to an automated tire building system working axis, wherein the automated tire building system comprises one or more work stations with application drums aligned to the working axis, and the tire building drum is moved into and out of each work station, comprising: supporting the tire building drum on a rigid, two-sided drum support frame having flat skates with flat bearing rollers under one side, and V-skates with V-mounted bearing rollers under the other side; providing a rail system comprising first and second approximately parallel rails passing through the one or more work stations, wherein the first rail is substantially flat-topped, and the second rail is substantially inverted V-shaped on top; causing the one or more flat skates to ride on the first rail, and causing the one or more V-skates to ride on the second rail; and positioning the drum support frame, the flat skates, and the V-skates relative to the tire building drum and the first and second rails; and positioning the first and second rails relative to the working axis; such that when the flat skates ride on the first rail and the V-skates ride on the second rail, the tire building drum is riding on the rail system and is precision aligned to the working axis. Exit ramps and funneling entry ramps are provided for exiting and re-entering the rail system. The tire building drum is moved by a vehicle having a flexible connection.